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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/637,438	08/08/2003	Adrian P. Stephens	1000-0023	3641

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EXAMINER
FAROUL, FARAH

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/637,438	STEPHENS ET AL.
	Examiner	Art Unit	
	Farah Faroul	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 June 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1,2 and 5-29</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1,2 and 5-29</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>08 August 2003</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>02/07/2005</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   The following Office Action is based on the amendment filed on June 22, 2007 in
response to a first Office Action, having claims 1-2 and 5-29 (claims 3-4 having been
cancelled).

Drawings

2.   The drawings are objected to because Figures 1-2 and 4-5 lack a descriptive
legend of acronyms SIFS, RTS, TCTS, Ack, T and Dav. Corrected drawing sheets in
compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid
abandonment of the application. Any amended replacement drawing sheet should
include all of the figures appearing on the immediate prior version of the sheet, even if
only one figure is being amended. The figure or figure number of an amended drawing
should not be labeled as "amended." If a drawing figure is to be canceled, the
appropriate figure must be removed from the replacement sheet, and where necessary,
the remaining figures must be renumbered and appropriate changes made to the brief
description of the several views of the drawings for consistency. Additional replacement
sheets may be necessary to show the renumbering of the remaining figures. Each
drawing sheet submitted after the filing date of an application must be labeled in the top
margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If
the changes are not accepted by the examiner, the applicant will be notified and
informed of any required corrective action in the next Office action. The objection to the
drawings will not be held in abeyance.

In addition to Replacement Sheets containing the corrected drawing figure(s),

applicant is required to submit a marked-up copy of each Replacement Sheet including

annotations indicating the changes made to the previous version. The marked-up copy

must be clearly labeled as "Annotated Sheets" and must be presented in the

amendment or remarks section that explains the change(s) to the drawings. See 37

CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy

will result in the abandonment of the application.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

Claims 1-10, 19-23 and 27-29 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention.

Claims 1, 19 and 27 recite the limitation "selecting an adaptation technique from

a group". The term "a group" in the limitation renders the claims vague and indefinite. It

is not clear what the contents of the "group" are.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

Note: The limitations "postfix adaptation" and "prefix adaptation" are not well known in the art. However, the prior art provided teaches the methods of these limitations as defined in applicant's disclosure.

Claims 1, 5-19, 21-25, and 27-28 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hui (EP 1 137 217 A1) in view of Soomro et al. (US 2003/0022686

A1) (both references disclosed by applicant).

For claims 1, 19, 24 and 27, Hui discloses estimating throughput for a

subsequent frame exchange using prefix adaptation, wherein prefix adaptation is a

technique where, during a frame exchange with a remote entity, adaptation information

is received from the remote entity, the adaptation information including information on

how to adapt a data transmit parameter (paragraph 20, lines 1-5 wherein adaptation

information is delivered before transmission of data packets (i.e. prefix adaptation) and

paragraph 19, lines 1-8 showing throughput estimation procedure);

Selecting an adaptation technique from a group including prefix adaptation and

postfix adaptation for use in the subsequent frame exchange based on estimated

throughput using prefix adaptation and performing the subsequent frame exchange

using the selected adaptation technique (paragraph 4, line 1 to paragraph 6, line 9,

wherein a transmission mode is selected and used to transfer data).

For claims 1, 19, 24 and 27, Hui discloses the entire claimed invention except

estimating the throughput using postfix adaptation, wherein postfix adaptation is a

technique where, during a frame exchange with a remote entity, adaptation information

is received from the remote entity after transmission of one ore more data frames to the

remote enity.

Soomro, from the same or similar field of endeavor, discloses sending a data

frame to a receiving station, and then calculating and sending throughput information for

subsequent frame exchange (i.e. postfix adaptation) (figure 4, elements 100, 120 and

130).

Thus, it would have been obvious to someone of ordinary skill in the art to

combine the adaptation selection technique of Hui with the postfix adaptation method of

Soomro at the time of the invention. The postfix adaptation method of Soomro can be

implemented into the communication network of Hui by estimating postfix adaptation

before selecting the transmission mode to use in the subsequent frame exchange. The

motivation to combine the adaptation selecting technique of Hui with the postfix

adaptation method of Soomro is that it provides efficient frame exchange mechanism

with maximal throughput.

For claims 5-6, 21 and 22, Hui discloses estimating the throughout by evaluating

an equation where Tprefix is the estimated throughput, Pcollision is the probability that

collision occurs, Li is the length of the ith packet of data that will be transmitted, Drts is

the duration of a channel access sequence and PER is the probability that a packet of

length Li will be received correctly.

Hui discloses calculating throughput for each transmission mode (i.e. postfix or

prefix) using an equation wherein L is the length of a frame to be transmitted, PER is

the probability that the frame will be transmitted correctly (paragraph 21, line 1 to

paragraph 24, line 2, and equation 2).

For claims 7, 25 and 28, Hui discloses selecting an adaptation technique for use

in the subsequent frame exchange having a higher throughput (paragraph 5, lines 1-4

wherein the transmission mode with maximal throughput is selected).

For claims 8-10 and 23 Hui discloses estimating the throughput includes

evaluating a number of parameter combinations, evaluating a number of combinations

of fragmentation threshold, modulation type, and prefix adaptation (paragraph 6, lines 1-

9 and table 1 wherein estimating the throughput involves link quality measurements,

e.g. carrier to interference ratio (C/I) ratio).

For claims 11-12 and 14, Hui discloses determining an adaptation validity

duration as an estimate of the useful life of adaptation information, determining an

adaptation validity duration includes monitoring variation of adaptation parameters as a

function of time (paragraph 20, lines 45-58 wherein adaptation validity duration is based

on evaluating parameters as a function of time).

For claims 11-12 and 14, Hui discloses the entire claimed invention except when

data is to be transferred, determining a time T since adaptation information was last

obtained and when T is greater than the adaptation validity duration, or when T is less

than the adaptation validity duration to choose between post or prefix adaptation.

Soomro, from the same or similar field of endeavor, discloses determining the

last time a frame was obtained by the receiving end and comparing to the current time

when the frame is to be transmitted and the duration of the transmission (paragraph 22,

lines 16-22).

For claim 13, Hui discloses estimating throughput for the subsequent frame

exchange using prefix adaptation, selecting an adaptation technique having a higher

estimated throughput (paragraph 5, lines 1-4 wherein the transmission mode with

maximal throughput is selected).

Soomro, from the same or similar field of endeavor, discloses sending a data

frame to a receiving station, and then calculating and sending throughput information for

subsequent frame exchange (i.e. postfix adaptation) (figure 4, elements 100, 120 and

130).

For claims 15 and 16, Hui discloses estimating throughput for a subsequent

frame exchange using prefix adaptation, selecting an adaptation technique to be used

for the subsequent frame exchange based on estimated throughput, transferring data

using the selected adaptation technique (paragraph 4, line 1 to paragraph 6, line 9,

wherein a transmission mode is selected and used to transfer data).

For claims 15 and 16, Hui discloses the entire claimed invention except

estimating throughput for the subsequent frame exchange using postfix adaptation and

the postfix data transmission rate.

Soomro, from the same or similar field of endeavor, discloses sending a data frame to a receiving station, and then calculating and sending throughput information for subsequent frame exchange (i.e. postfix adaptation) (figure 4, elements 100, 120 and 130).

For claim 17, Soomro discloses determining a postfix data transmission rate includes choosing a first data transmission rate if T exceeds a threshold value and choosing a second data transmission rate if T does not exceed the threshold value (paragraph 17, lines 1-30).

For claims 18, Hui discloses determining a postfix data transmission rate includes evaluating an equation that is a function of T (paragraph 20, lines 45-50).

5.   Claims 2, 20, 26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hui and Soomro as applied to claims 1, 19, 24 and 27 above, and further in view of Stolyar et al. (US 2004/0266451 A1).

For claims 2, 20, 26 and 29, Hui and Soomro disclose the entire claimed invention except for estimating the throughput includes dividing an amount of data expected to be successfully transferred during a frame exchange by an expected total duration of the frame exchange.

Stolyar, from the same or similar field of endeavor, teaches a method in which throughput is calculated by dividing the amount of bits to be transferred by the duration of the frame (paragraph 15, lines 8-17).

Thus, it would have been obvious to someone of ordinary skill in the art to combine the throughput calculation method of Stolyar with the modified system of Hui and Soomro at the time of the invention. The throughput calculation method of Stolyar can be implemented in the communication network of Hui and Stolyar by dividing data length by the duration of the frame exchange. The motivation to combine the throughput calculation method of Stolyar with the communication network of Hui and Soomro is that it provides an effective way method to calculate the data rate for the selection of the best transmission mode in the communication network.

Response to Arguments

6.   Applicant's arguments filed on June 22, 2007 have been fully considered but they are not persuasive. The drawings objections are maintained, as acronyms SIFS, RTS, TCTS, ACK, T and Dav are not well known in the art. When the drawings are read separately from the disclosure, the acronyms therein should be readily understandable to one of ordinary skill in the art. For the 103 rejections, Applicant has admitted that Hui teaches an example of prefix adaptation technique (see page 13 of arguments) and Soomro teaches an example of postfix adaptation. Thus, it would have been obvious to someone of ordinary skill in the art in possession of the two references to combine the adaptation techniques and add a "selection" feature as to which technique to be used. Thus, the rejections are maintained.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

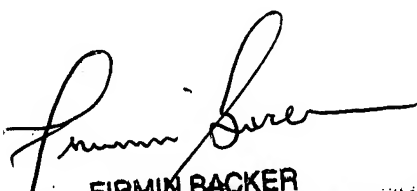than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Farah Faroul whose telephone number is 571-270-1421.

The examiner can normally be reached on Monday - Friday 6:30 AM - 4 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Firmin Backer can be reached on 571-272-6703. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

F. F.

FIRMIN BACKER
SUPERVISORY PATENT EXAMINER